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Disposable microwavable food container.

Abstract:

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The present invention relates to improvements in thermoformed plastic containers for food and more particularly to such a container for packaging pre-prepared food of the type commonly referred to as "Deli foods".

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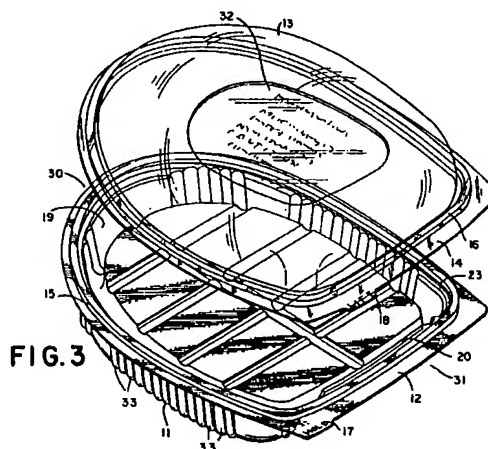
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(54) **Disposable microwavable food container.**

(57) The present invention relates to improvements in thermoformed plastic containers for food and more particularly to such a container for packaging pre-prepared food of the type commonly referred to as "Deli foods".



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The present invention relates to a disposable microwavable food containers. The invention is particularly concerned with containers for packaging pre-prepared foods of the type commonly referred to as "deli foods".

Containers for food or other articles thermoformed from plastic material normally comprise a lid and base which may be hinged to each other or may be separate parts. In order to hold the lid and base of the container in closed condition, it is necessary that the lid and base have a closure which can be manually opened and closed with relative ease. However, the closure should be capable of securely closing the container to avoid accidental opening or leakage of the contents. Containers for deli foods should have a lock which seals against liquid spillage.

Various types of closures have been proposed in the past. Some have included latching or latching structures. For example, cylindrical male and female latching elements have been proposed as disclosed in US-A-4576330. US-A-4452356 shows a container in which tabs are provided for opening the container. US-A-5046659 is an example of a food container made of clear plastic which presents an attractive appearance for the food, plus a unique locking closure.

However, deli foods are most often packaged in foil bags, plastic bags, foil pans with deli overwraps or polystyrene foam trays with overwraps. It is an object of the present invention to improve the presentation of foods in containers which can be used for microwave heating of the contents.

According to the present invention there is provided a container for food or the like comprising:

a base having a horizontal flange extending around the periphery thereof;

a lid having a horizontal flange extending around the periphery thereof and adapted for engagement with the horizontal flange of said base when said container is in closed condition;

a male locking member extending around the periphery of one of said flanges;

mating female locking member extending around the periphery of the other flange;

a stiff tab extending from the periphery of said base; and

a stiff tab extending from the flange of said lid, said tabs being in proximity to one another and slightly displaced from one another to facilitate unlocking of the mating male and female locking members on said flanges.

Preferably the tabs are embossed with visual instructions for unlocking.

Desirably the container is provided with a double seal lock which includes said male and female locking members, said female locking member be-

ing on said lid, said lid extending upwardly from said female locking member into a dome.

The base may have vertical walls with a rim extending between said walls and said flange on said base. The walls of said base may be scalloped to add rigidity to said base. The rim may extend upwardly to form one vertical member of said male locking member. The lid may have an upwardly extending vertical member which engages said vertical member of said male locking member.

The male locking member may have two vertical members which extend outwardly and upwardly; said female locking member being formed on the flange of said lid with generally vertical members so that said male locking member snaps into said female locking member to form a liquid-tight seal.

The container is preferably generally oval in shape and wherein a handle is formed in both ends of said base. One end of said oval-shaped container may extend to a round point and the other end of said container may extend to a flat rounded end. The container may have a squared oval base and a domed lid.

The oval base and said domed lid can be shaped to conform generally to the shape of the food contained therein to present an attractive appearance for said food: when the lid is in the shape of a high dome it can accommodate a chicken or the like; when the lid has a flat dome it can accommodate cut food parts.

The vertical walls at both ends of said base may have flat portions which are offset inwardly with respect to said vertical walls, said handles being generally horizontal protrusions between said flat portions and said rim.

The base of said container may have a raised bottom with grooves therein, so that said food can rest on the bottom of said base with the liquid from said food being contained in said grooves.

The base is preferably made of microwavable plastics and the dome is preferably made of clear plastic suitable for warming oven display and covering foods during microwave heating. Ideally the lid is constructed of clear plastic and the base is constructed of opaque plastic. The lid is preferably impregnated with an anti-fog agent.

The microwavable plastics for the base are desirably selected from group consisting of talc-filled polypropylene, polypropylene, styrene maleic anhydride, polyphenylene oxide/polystyrene or crystallised polyethylene-terephthalate. The dome materials are desirably selected from the group consisting of oriented polystyrene, amorphous polyethylene-terephthalate, and styrene maleic anhydride.

The domed lid preferably has a flat portion at the top thereof; and cooking instructions may be embossed upon said flat portion.

The male locking member preferably has a steam vent slit.

Reference is now made to the accompanying drawings, in which:

Fig. 1 is a view of a container according to the invention in the closed position;

Fig. 2 shows the container with a low dome lid;

Fig. 3 is a view with the lid removed from the base;

Fig. 4 is a perspective view of the a high domed lid in the closed position;

Fig. 5 is a plan view with the lid partially broken away;

Fig. 6 is a side elevation;

Fig. 7 is a cross-section through the section 7-7 of Fig. 6;

Fig. 8 is an enlarged detail of the seal mechanism;

Fig. 9 is an end view of the round pointed end; and

Fig. 10 is an end view of the flat rounded end of the base shown the handle.

A food container has a base 11 with a horizontal flange 12 bending around the periphery thereof. A lid 13 has a horizontal flange 14 extending around the periphery. Flange 14 engages flange 12 when the container is in the closed condition. A male locking member 15 extends around the periphery of the flange 12 on the base. Female locking member 16 is a groove which extends around the periphery of the flange 14 on the lid. Male locking member 15 is slightly smaller than, but fits snugly into, female locking member 16 to form one part of a double seal which will be resistant to leakage.

In order to open the container, a stiff tab 17 extends from the periphery of base 11. A stiff tab 18 extends from the flange of the lid. The tabs 17 and 18 are in proximity to one another and slightly displaced from one another. Disengagement of the seal can be accomplished by holding the tab 17 and lifting the tab 18. The instructions "HOLD" and "LIFT" are embossed onto the tabs 17 and 18 respectively. These provide visual instructions for unlocking the container.

The container is generally oval in shape. Handles 25 and 26 are formed in both ends of the container as best shown in Figs. 9 and 10.

The base 11 has vertical walls with a rim 23 extending between the vertical walls and the flange 12. (Fig. 6). The vertical walls of the base have scallops 33 which add rigidity to the base and make it serviceable for its intended purpose even though the base is thermoformed from relatively thin plastic.

The vertical wall, at the flat rounded end of the base, has a flat portion 19 which is offset inwardly with respect to the vertical wall (Fig. 9). Handle 25 is a generally horizontal protrusion which extends between the flat portion 19 and the rim 23. At the other end of the container, a flat portion 20 is offset inwardly with respect to the vertical wall (Fig. 10). The handle 26 is a horizontal protrusion between the flat portion 20 and the rim 23.

As shown in Fig. 8, the rim 23 extends upwardly to form one vertical member 27 of the male locking member 15. Vertical member 27 and vertical member 28 of the male locking member 15 extend upwardly and outwardly. Because the male locking member 15 has greater thickness at its topmost portion, it snaps into the groove of the female locking member 16. An upwardly extending vertical member 34 on the lid 13 engages vertical member 27 of the base 11. This also forms a seal so the container has a double seal. At the bottom of vertical member 34, the lid 13 extends in the horizontal section 21, then extends upwardly from the female locking member 16 into the dome 13. This forms a good liquid-tight seal.

The container has a round pointed end 30 and a flat rounded end 31. The oval base 11 and dome lid 13 conform generally to the shape of a whole roasted chicken contained therein to present an attractive appearance for the food. The high dome lid 13 shown in Figs. 1 and 4 will accommodate a whole cooked chicken and presents an attractive package for the chicken. The flat domed container shown in Fig. 2 is particularly adapted for accommodating cut food parts such as chicken wings or other deli foods.

A flat portion 32 of the lid provides space for embossed cooking instructions. For example, instructions for microwaving the food contained therein may be embossed the flat portion 32.

The base 11 is made of a microwavable plastic. The dome is made of a material which is suitable for covering foods during warming oven display and microwave heating. The generic materials for the base, and examples thereof, include: talc-filled polypropylene, polypropylene, styrene maleic anhydride (Arco Dylark), polyphenylene oxide/polystyrene (General Electric Noryl) or crystallised polyethylene terephthalate (CPET). The base is constructed of opaque plastic, whereas the lid is constructed of clear plastic. The lid may be made from amorphous polyethylene-terephthalate, oriented polystyrene or styrene maleic anhydride (Arco Dylark). The clear dome is coated with a suitable anti-fog agent to enhance product visibility during warming oven or refrigerator display

Claims

1. A container for food or the like comprising:
 - a base have a horizontal flange extending around the periphery thereof;
 - a lid having a horizontal flange extending around the periphery thereof and adapted for engagement with the horizontal flange of said base when said container is in closed condition;
 - a male locking member extending around the periphery of one of said flanges;
 - mating female locking member extending around the periphery of the other flange;
 - a stiff tab extending from the periphery of said base; and
 - a stiff tab extending from the flange of said lid, said tabs being in proximity to one another and slightly displaced from one another to facilitate unlocking of the mating male and female locking members on said flanges.
2. A container according to claim 1, wherein said tabs are embossed with visual instructions for unlocking.
3. A container according to claim 1 or 2, having a double seal lock which includes said male and female locking members, said female locking member being on said lid, said lid extending upwardly from said female locking member into a dome.
4. A container according to claim 3, wherein said base has vertical walls with a rim extending between said walls and said flange on said base.
5. A container according to claim 4, wherein said walls of said base are scalloped to add rigidity to said base.
6. A container according to claim 4 or 5, wherein said rim extends upwardly to form one vertical member of said male locking member.
7. A container according to claim 6, wherein said lid has an upwardly extending vertical member which engages said vertical member of said male locking member.
8. A container according to claim 7, wherein said male locking member has two vertical members which extend outwardly and upwardly; said female locking member being formed on the flange of said lid with generally vertical members so that said male locking member snaps into said female locking member to form

a liquid-tight seal.

9. A container according to any preceding claim, wherein said container is generally oval in shape and wherein a handle is formed in both ends of said base.
10. A container according to claim 9, wherein one end of said oval-shaped container extends to a round point and wherein the other end of said container extends to a flat rounded end.
11. A container according to claim 9, wherein said container has a squared oval base and a domed lid.
12. A container according to claim 11, wherein said oval base and said domed lid conform generally to the shape of the food contained therein to present an attractive appearance for said food.
13. A container according to claim 12, wherein said lid is in the shape of a high dome which will accommodate a chicken or the like, or said lid has a flat dome for accommodating cut food parts.
14. A container according to any one of claims 9 to 13, when dependent upon any one of claims 4 to 8, wherein the vertical walls at both ends of said base has flat portions which are offset inwardly with respect to said vertical walls, said handles being generally horizontal protrusions between said flat portions and said rim.
15. A container according to any preceding claim, wherein the base of said container has a raised bottom with grooves therein, so that said food can rest on the bottom of said base with the liquid from said food being contained in said grooves.
16. A container according to any preceding claim, wherein said base is made of microwavable plastics and said dome is made of clear plastic suitable for warming oven display and covering foods during microwave heating.
17. A container according to claim 16, wherein said microwavable plastics for the base are selected from group consisting of talc-filled polypropylene, polypropylene, styrene maleic anhydride, polyphenylene oxide/polystyrene or crystallised polyethylene-terephthalate.
18. A container according to claim 17, wherein said dome materials are selected from the

group consisting of oriented polystyrene, amorphous polyethylene-terephthalate, and styrene maleic anhydride.

19. A container according to any preceding claim, wherein said domed lid has a flat portion at the top thereof; and cooking instructions are embossed upon said flat portion. 5
20. A container according to any preceding claim, wherein said lid is constructed of clear plastic and said base is constructed of opaque plastic. 10
21. A container according to any preceding claim, wherein said lid is impregnated with an anti-fog agent. 15
22. A container according to any preceding claim, wherein said male locking member has a steam vent slit. 20

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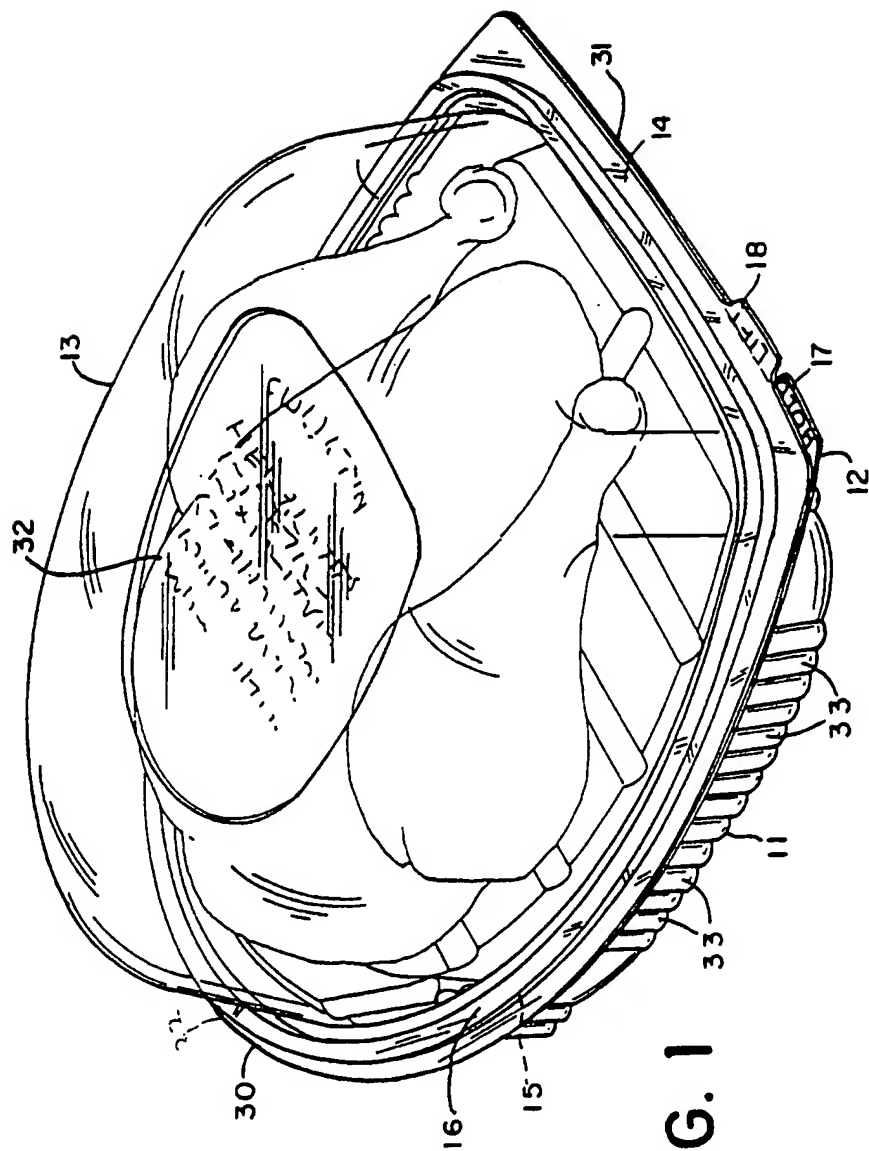


FIG. 1

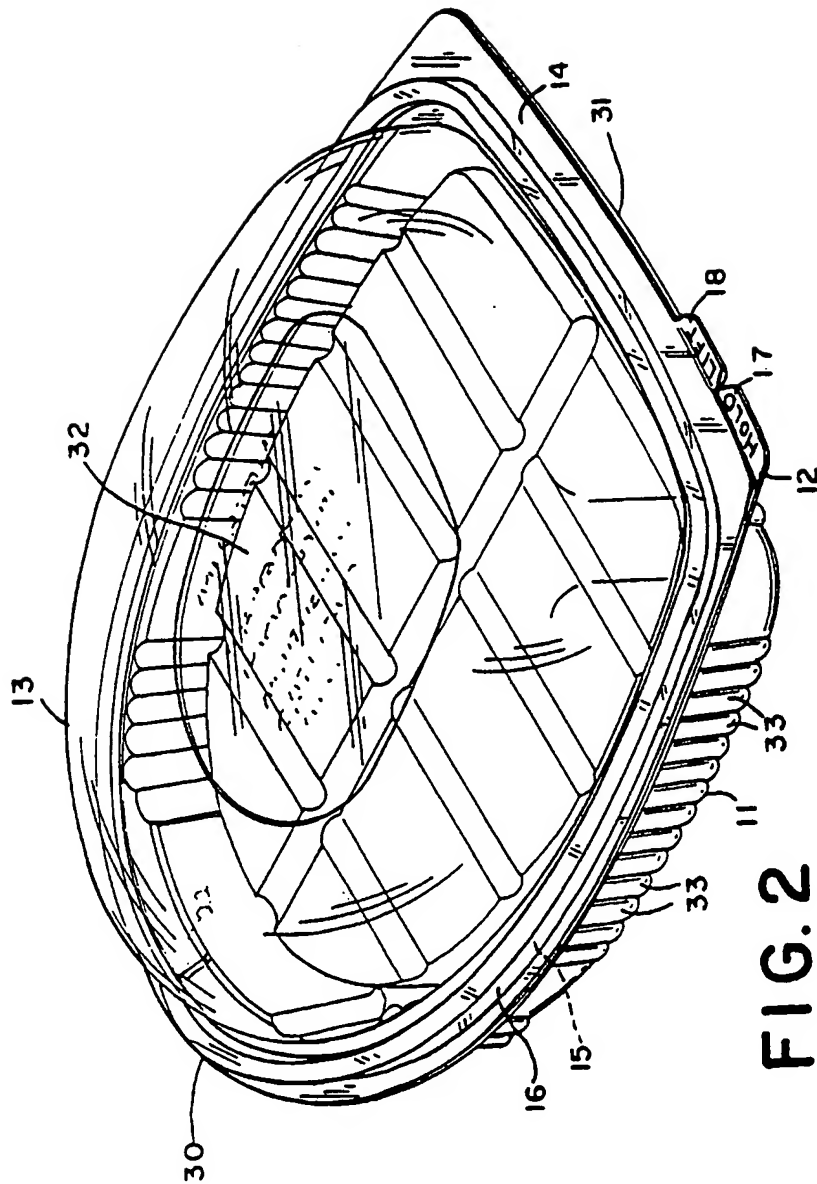
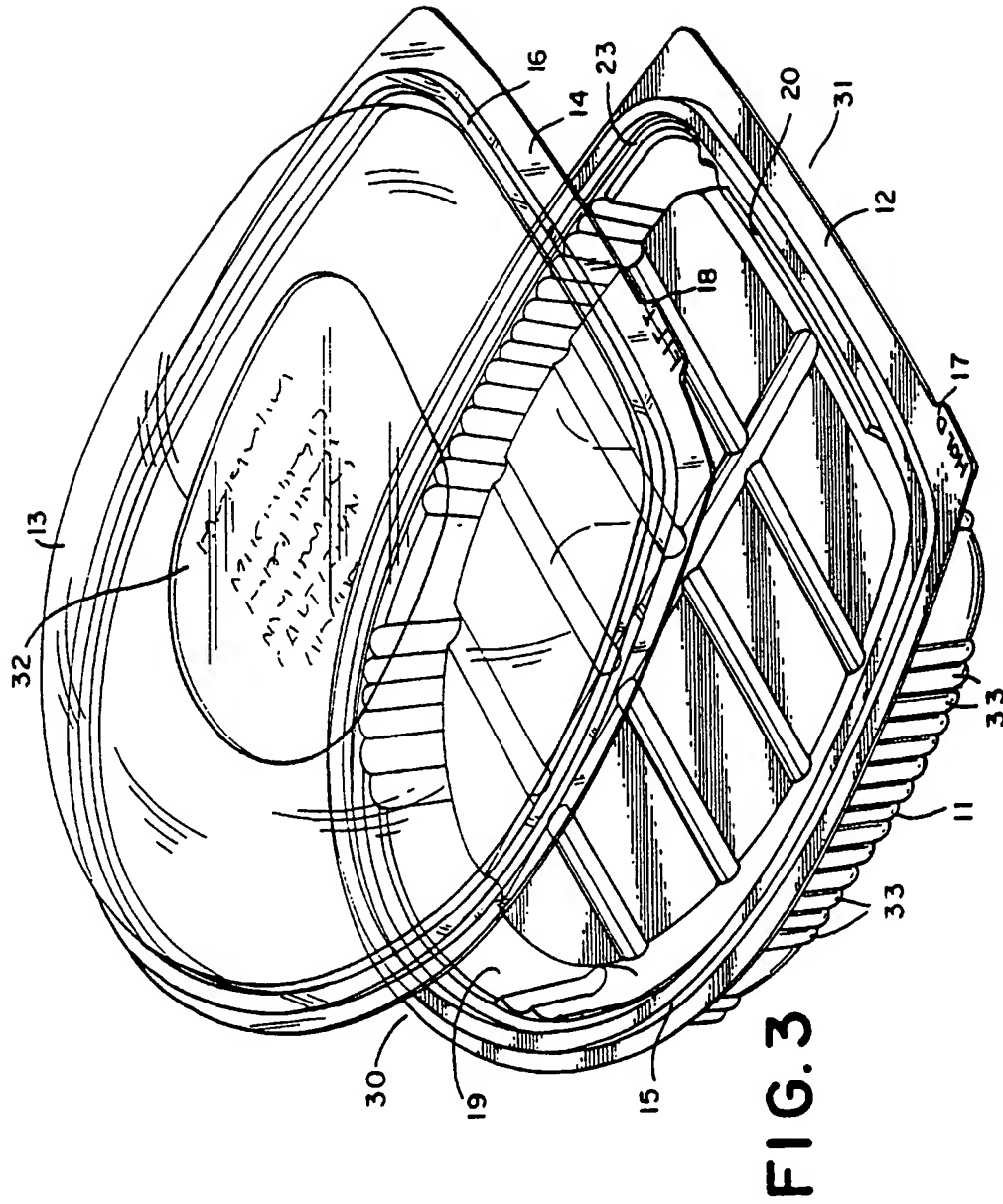


FIG. 2



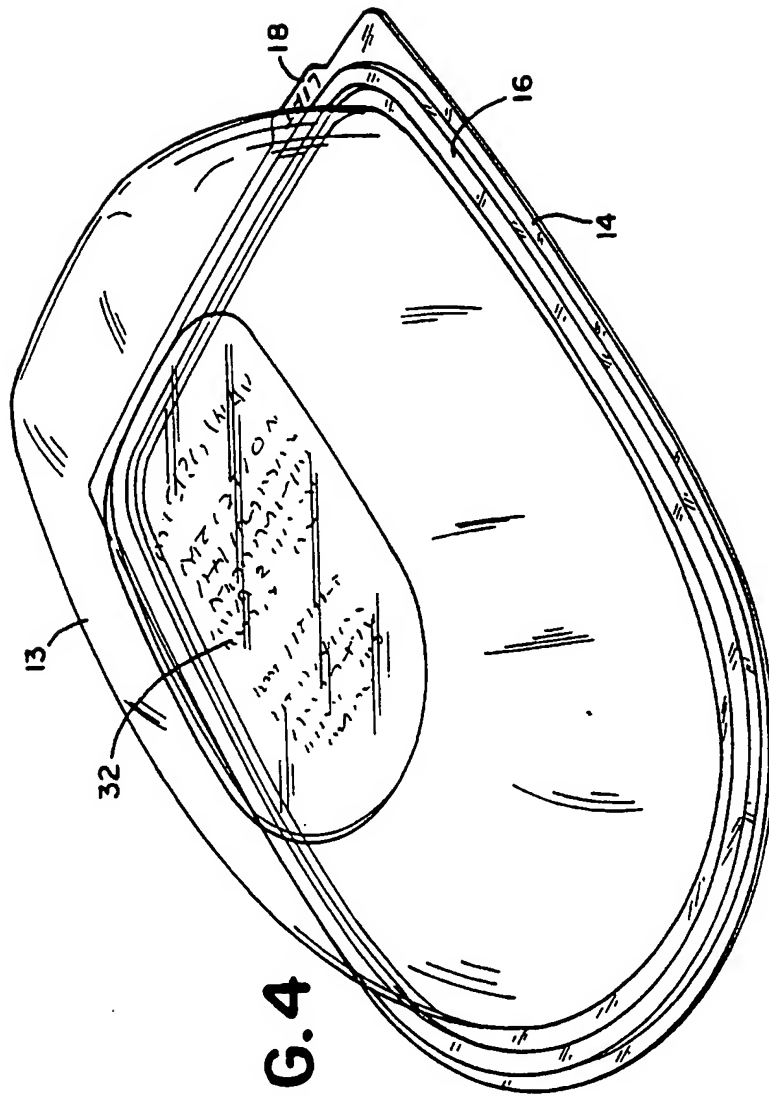
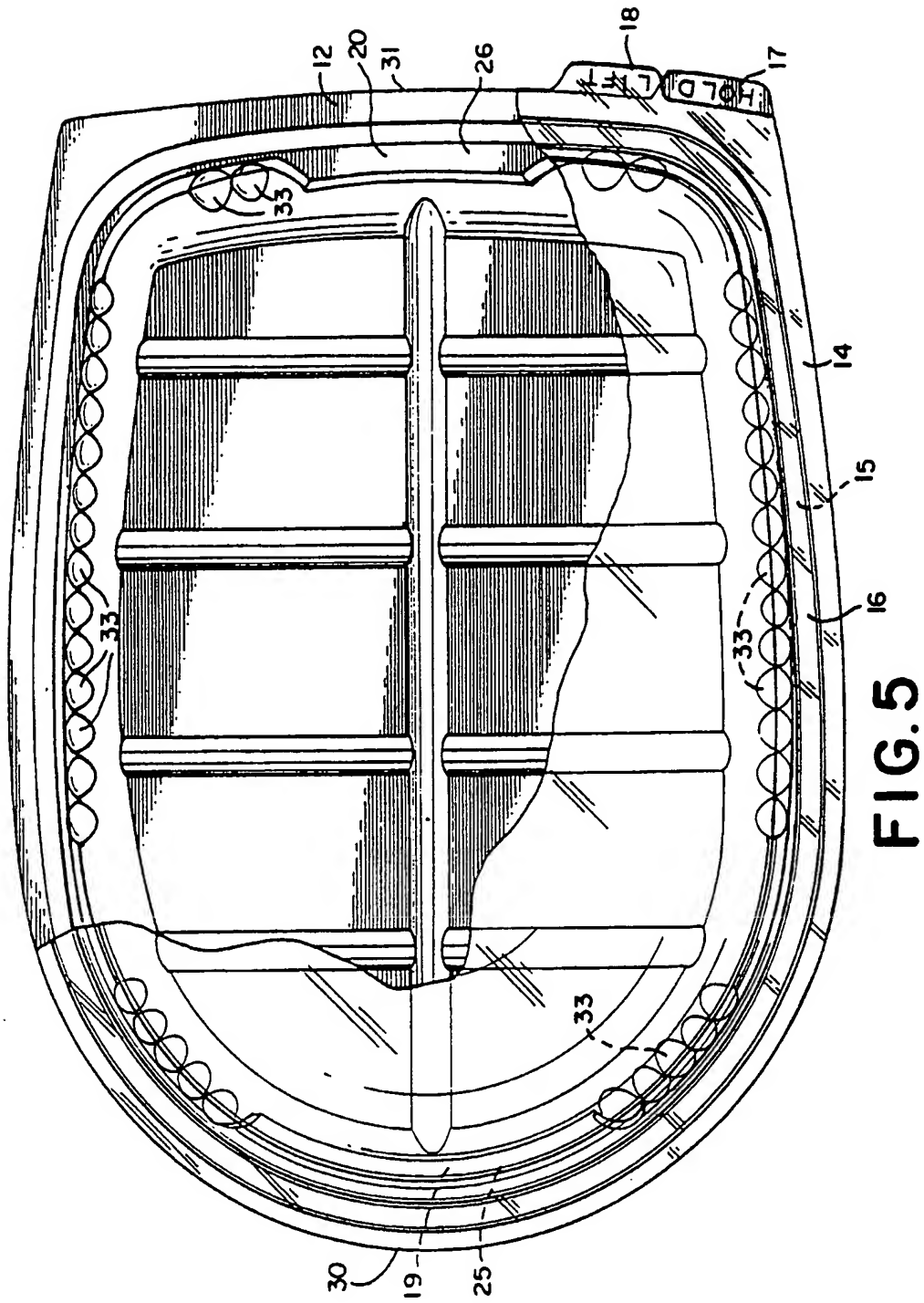


FIG. 4



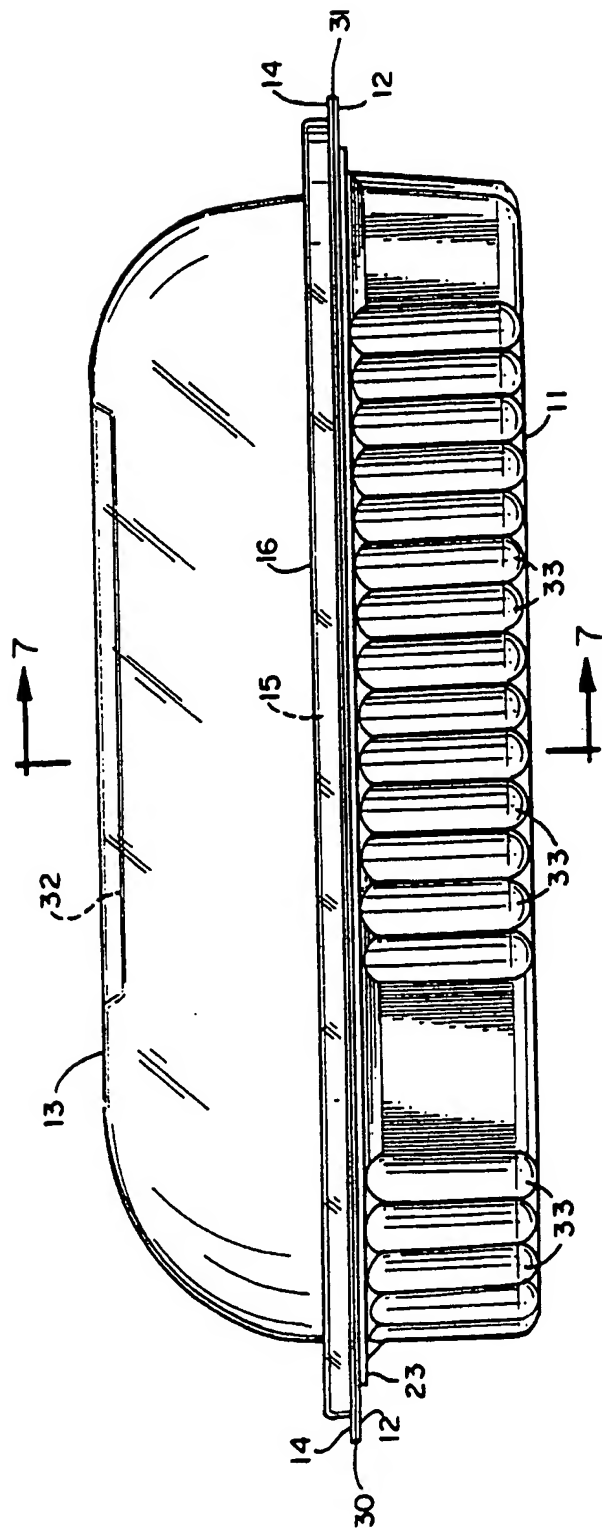


FIG. 6

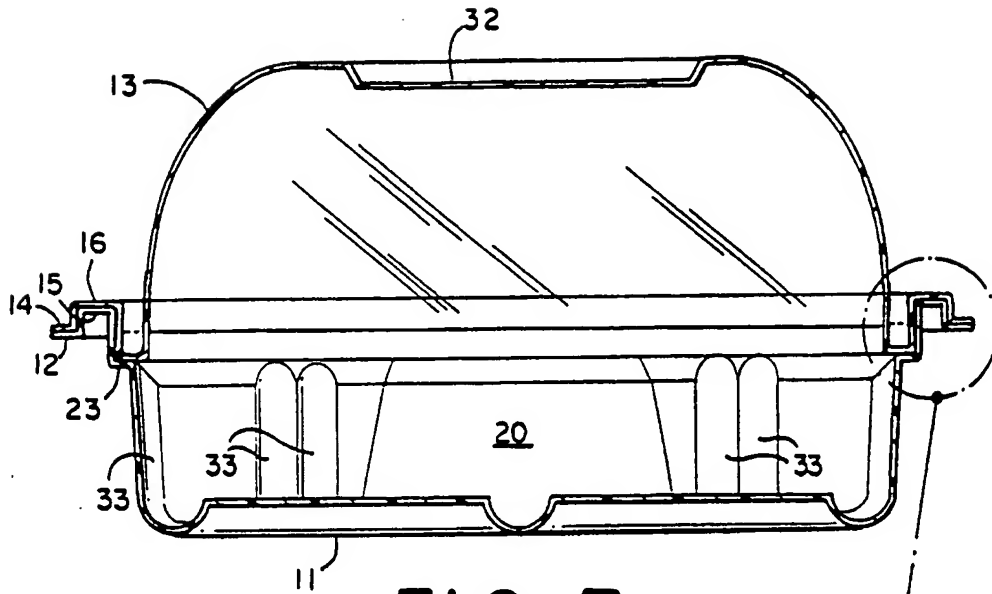


FIG. 7

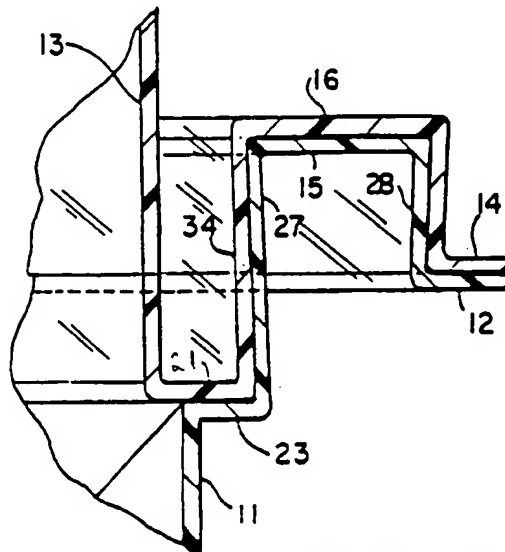


FIG. 8
(ENLARGED DETAIL)

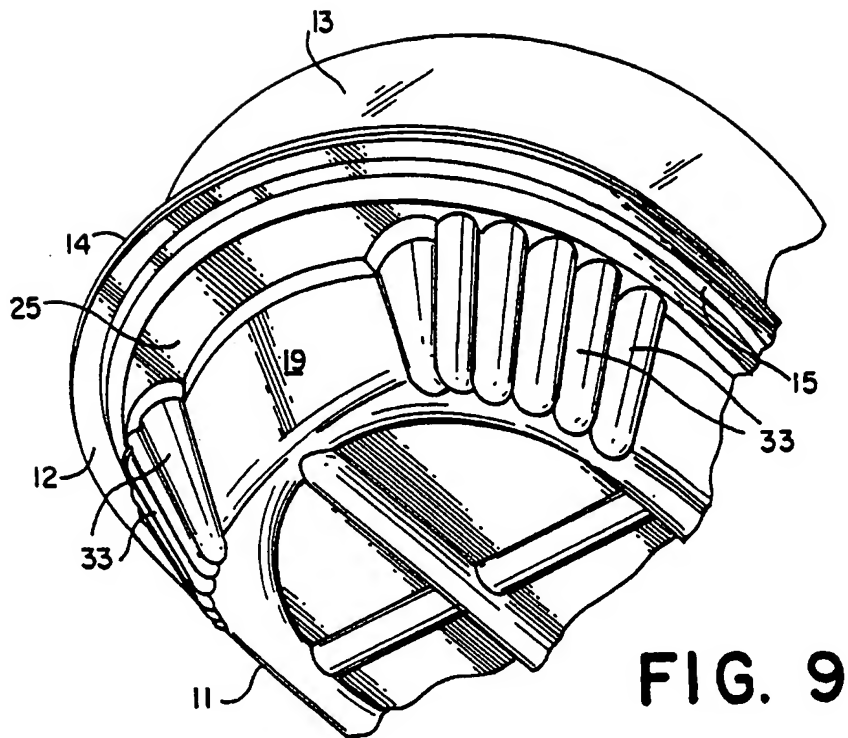


FIG. 9

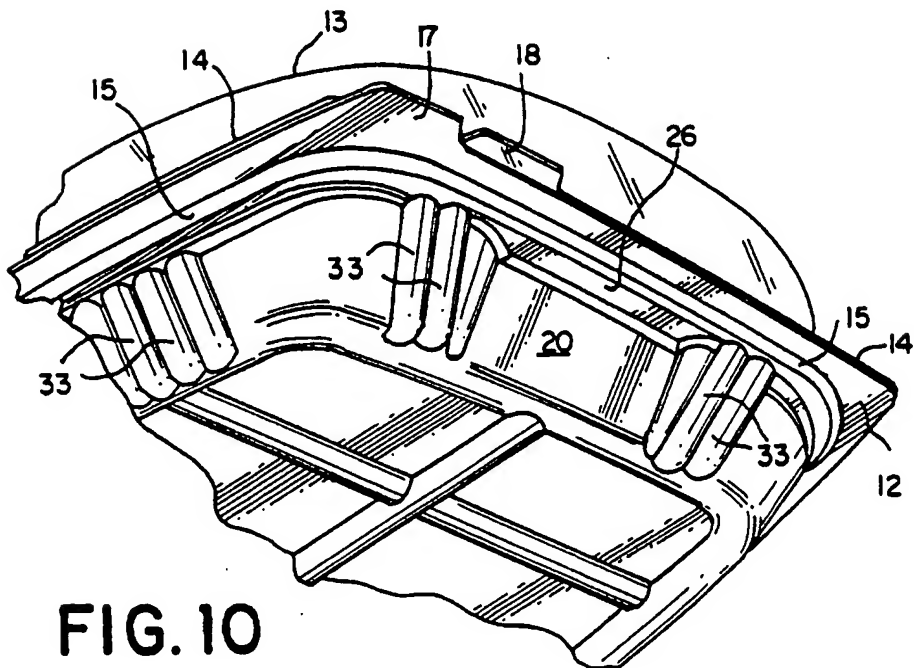


FIG. 10



European Patent
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EUROPEAN SEARCH REPORT

Application Number

EP 92 31 0425

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	US-A-4 863 054 (CAPETTA) * column 3, last paragraph - column 4, paragraph 1; figures 2-6 *	1,3-8	B65D81/34 B65D43/06
A	---	9	
Y	DE-U-8 715 562 (BELLAPLAST) * page 4, line 1 - line 2 * * page 10, last paragraph - page 11, paragraph 1; claim 12; figures 1,2,4 *	1,3-8	
A	US-A-3 256 975 (PUENTE) * column 3, line 57 - line 60; figures 5,7 *	1,3-8, 15,20	
A	EP-A-0 357 331 (COURTAULDS FILMS & PACKAGING) * abstract * * column 2, paragraph 3 *	1,16,20	
A	GB-A-2 201 400 (SMITH BROTHERS) * page 6, line 16 - page 7, line 4 * * page 11, line 3 - line 5 * * page 17, last paragraph; figures 1,2 *	1,16,17, 20	TECHNICAL FIELDS SEARCHED (Int. Cl.5) B65D
A	DE-A-2 363 989 (ARTUSI) * the whole document *	1	
A	EP-A-0 219 442 (GUILLIN EMBALLAGES) * abstract; figures 1,2 *	1	
D,A	US-A-5 046 659 (WARBURTON) -----		
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 22 JANUARY 1993	Examiner SPETTEL J.D.M.L.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document			

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